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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,532	12/14/2001	James Y. Hurt	PA010411	9150

23696 7590 12/04/2003

Qualcomm Incorporated
Patents Department
5775 Morehouse Drive
San Diego, CA 92121-1714

EXAMINER

BAKER, STEPHEN M

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 12/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/020,532

Applicant(s)

HURT ET AL.

Examiner

Stephen M. Baker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-11 is/are allowed.
- 6) ☒ Claim(s) 1-7 and 12-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 18-22, 26 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Using Fig. 4 as a guide, and taking "X" therein as the "first set of state values", it is noted that the two encoded data generators (420, 430) have no internal state storage or output state storage associated therewith and neither generator (420, 430) is responsive to the other, consequently:

In claim 18, "generating a second set of *state* values" apparently should be "generating a second set of ***encoded output*** values", to correspond to either generator (420) or (430), and lines 4-5 apparently should be deleted for having no corresponding element shown.

In claim 20: "calculating a *second* set of *state* values" apparently should be "calculating a ***first*** set of ***encoded*** values"; "calculating a *third* set of *state* values based on the plurality of input bits and the *first and second* sets of state values" apparently should be "calculating a ***second*** set of ***encoded*** values based on the plurality of input bits and the ***first set*** of state values"; "generating a set of encoded outputs based on the *first, second, and third* sets of *state* values" apparently should be "generating a set

of encoded outputs based on the **first and second** sets of **encoded** values”.

In claim 21: “*third* set” apparently should be “**first** set”.

In claim 22: “calculating a *fourth* set of state values based on the second plurality of input bits and the *third* set of state values” apparently should be “calculating a **second** set of state values based on the second plurality of input bits and the **first** set of state values”; “calculating a *fifth* set of state values based on the second plurality of input bits and the *fourth* set of state values” apparently should be “calculating a **third** set of **encoded** values based on the second plurality of input bits and the **second** set of state values”; “calculating a *sixth* set of state values based on the second plurality of input bits and the *fourth and fifth* sets of state values” apparently should be “calculating a **fourth** set of **encoded** values based on the second plurality of input bits and the **second set** of state values”; “generating a second set of encoded outputs based on the *fourth, fifth, and sixth* sets of state values” apparently should be “generating a second set of encoded outputs based on the **third and fourth** sets of **encoded** values”.

In claim 26: “calculating a *second* set of state values” apparently should be “calculating a **first** set of **encoded** values”; “calculating a *third* set of state values based on the plurality of input bits and the *first and second* sets of state values” apparently should be “calculating a **second** set of **encoded** values based on the plurality of input bits and the **first set** of state values”; “generating a set of encoded outputs based on the *first, second and third* sets of state values” apparently should be “generating a set of encoded outputs based on the **first and second** sets of **encoded** values”.

In claim 27: “calculating a *second* set of state values” apparently should be

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"calculating a **first** set of **encoded** values"; "calculating a **third** set of **state** values based on the plurality of input bits and the **first and second** sets of state values" apparently should be "calculating a **second** set of **encoded** values based on the plurality of input bits and the **first set** of state values"; "generating a set of encoded outputs based on the **first, second and third** sets of state values" apparently should be "generating a set of encoded outputs based on the **first and second** sets of **encoded** values".

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,912,898 to Khoury (hereafter Khoury) .

Khoury shows (Figure 3) a convolutional interleaver address generator including means (15) for determining a first counter value, means (16) for generating a first valid address from the first counter value, means (19) for determining a second counter value, and means (21) for generating a second valid address from the second counter

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value.

5. Claims 1-4, 6 and 7 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent No. 6,138,262 to Baek (hereafter Baek).

Baek shows (Figure 4) a convolutional interleaver address generator including means (30) for determining a first counter value, means (20, 70) for generating a first valid address from the first counter value, means (60) for determining a second counter value, and means (50, 40, 80) for generating a second valid address from the second counter value.

6. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,592,492 to Ben-Efraim *et al* (hereafter Ben-Efraim).

Ben-Efraim shows (Figure 4) a convolutional interleaver address generator process including process means (106) for determining a first counter value, process means (110, 112, 114, 116) for generating a first valid address from the first counter value, process means (122) for determining a second counter value, and process means (124-NO) for generating a second valid address from the second counter value. The increment of K is an offset counter value = 1. A memory storage device (63, Figure 3) is provided for storing the address generator program, counter values and offsets.

7. Claims 1-5 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent No. 6,178,530 to Aman *et al* (hereafter Aman).

Aman shows (Figures 6A and 6B) a convolutional interleaver address generator process including determining first and second counter values (successive START_ADDRESS values) and generating first and second valid addresses (respective

ADDR values) from the first and second counter values. The second counter value is determined by adding (236) an offset to the first counter value.

8. Claims 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,488,142 to Franaszek (hereafter Franaszek).

Franaszek shows a runlength-limited code encoder (Figure 2) including a means (Figure 4) for calculating a first set of state values, and a means (Figures 3.1, 3.2) for generating a first set of encoded output values. Reference is hereby made to the observations made elsewhere in this communication regarding the clarity of the claims.

9. Claims 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,922,507 to Simon *et al* (hereafter Simon).

Simon shows a convolutional trellis code encoder (Figure 13) including a state transition lookup table (113) means for calculating a first set of state values, and an encoder output lookup table (123) means for generating a first set of encoded output values. Reference is hereby made to the observations made elsewhere in this communication regarding the clarity of the claims.

10. Claims 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,931,965 to Alamouti (hereafter Alamouti).

Alamouti shows a convolutional trellis code encoder (Figure 21) including a state transition lookup table (1500) means for calculating a first set of state values, and an encoder output lookup table (1520) means for generating a first set of encoded output values. Reference is hereby made to the observations made elsewhere in this communication regarding the clarity of the claims.

11. Claims 16-23, 26 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,392,037 to Kato (hereafter Kato).

Kato shows an image compression code encoder (Figure 1(a)) including a predictor means (102) for calculating a first set of state values, a differencer means (103) for generating a first set of encoded values, and a prediction error remainder generator means (104, 105, 106) for generating a second set of encoded values. Reference is hereby made to the observations made elsewhere in this communication regarding the clarity of the claims.

12. Claims 16-23, 26 and 27 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent No. 6,028,541 to Levine (hereafter Levine).

Levine shows an audio compression code encoder (Figure 1) including a predictor means (102) for calculating a first set of state values, a differencer means (112) for generating a first set of encoded values, and a sample residual generator means (106, 108, 110) for generating a second set of encoded values. Reference is hereby made to the observations made elsewhere in this communication regarding the clarity of the claims.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,023,783 to Divsalar *et al* (hereafter Divsalar).

Divsalar shows (Figure 6A) a turbo code encoder including a plurality of memories/interleaver units ($pi_{n,1} - pi_{n,ma}$), a first encoder (C_1) and a second encoder (C_n). Each memory/interleaver unit is a memory with an associated interleaver (interleaving address generator). The encoders each process multiple bits (e.g. bits $d_1 - d_m$) per clock cycle. Providing a buffer memory to supply data to the turbo encoder shown by Divsalar could not have been considered to involve an inventive step, because the data rate-matching usefulness of buffering encoder source data was well known.

15. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,931,965 to Alamouti (hereafter Alamouti).

Using the generator disclosed by Alamouti to generating a convolutional code having the generator polynomials recited in claims 24 and 25 could not have been considered to involve an inventive step, because the generator polynomials recited in claims 24 and 25 were well known.

Allowable Subject Matter

16. Claims 8-11 are allowed.

Conclusion

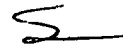
17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (703)

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305-9681. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.



Stephen M. Baker
Primary Examiner
Art Unit 2133

smb